

CLAIMS

1. A heat transfer device for intravascular temperature control of a patient, comprising:

a flexible layer of a substantially conductive material, the flexible layer having in part the shape of a helical groove, and shaped and configured such that the flexible layer may be removed from a multi-part mold in the absence of an undercut.

2. The device of claim 1, wherein the flexible layer is formed of a metal selected from the group consisting essentially of Fe, Ti, Ta, nitinol, stainless steel, Al, Ag, Au, Cu, and Ni.

3. The device of claim 1, wherein the total outside diameter of the device is between about 9 f to 18 f.

4. The device of claim 1, wherein the heat transfer device includes at least two heat transfer segments separated by an articulating joint, wherein each heat transfer segment has a flexible layer.

5. The device of claim 4, wherein the articulating joints are shaped and configured as bellows.

6. The device of claim 4, wherein the articulating joints are shaped and configured as flexible tubes.

7. The device of claim 1, wherein the flexible layer
5 has a thermal conductivity in the range of about 0.1 to 4 W/cm-K.

8. The device of claim 4, wherein each segment has at least two helical grooves, one of said at least two
10 helical grooves having opposite helicity from the at least two helical grooves on another of said helical grooves.

9. The device of claim 8, wherein the two helical grooves on each segment are joined by a circumferential
15 segment.

10. A method of making a heat transfer device, comprising:

Providing a mold in a deposition apparatus, the mold
20 having an inside shape such that a flexible continuous substantially conductive layer may be deposited in the mold and shaped, configured, and arranged to have at least two helical grooves formed on a heat transfer segment, the two helical grooves being joined by a circumferential segment.

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11. The method of claim 10, wherein the providing further comprises providing a mold that is shaped,

configured, and arranged to form a layer that lacks undercuts.

12. The method of claim 10, wherein the inside shape
5 forms at least two heat transfer segments, the helical
grooves on one of the heat transfer segments having
opposite helicity from the helical grooves on another of
said heat transfer segments.

10 13. A product formed by the process of claim 10.